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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,976	02/23/2004	Yoichi Ogasawara	249207US-2S CONT	2616

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EXAMINER	
JAWORSKI, FRANCIS J	
ART UNIT	**PAPER NUMBER**
3737	

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/782,976	OGASAWARA	
	Examiner	Art Unit	
	Jaworski Francis J.	3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02232004(IDS)*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *7-16* is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *02232004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities:

Para [0006] after "popular with " add -- techniques in --;

Para [0048] " prove " to -- probe --;

Para [0055] " (CEM) " to -- (CFM) --;

Para [0067] after " aiming " add -- at --.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

(Parenthesized claim numbers refer to the specific claim or claims being addressed by the immediately preceding rejection.)

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 –3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chandler et al (US5935069) in view of Chandler (US5860931) and Hoff et al (US6315730).

Chandler et al '069 teach an ultrasound diagnostic apparatus comprising:

an ultrasonic probe 185 for transmitting ultrasound to 150 in a subject who has been injected with a contrast agent via the infusion pump of Fig. 1,

a driving signal generator 175 generating a drive signal for the probe, and

a control unit 155 for performing repeat scanning with ultrasound of high intensity (as defined col. 5 lines 13 – 15) such that contrast agent is collapsed at a varying interval after injection and with respect to an R-wave reference (col. 5 lines 31 – 39).

Whereas Chandler et al derive contrast agent concentration over time, they do not describe deriving a curve therefrom nor the measurement sequence in seconds.

It would have been obvious in view of Chandler '931 to produce a perfusion or contrast agent concentration curve (see col. 9 lines 45 – 47 since the latter is the technique being involed by Serial No. in Chandler et al col. 6 top which references the latter-s calculation of such perfusion.

Further, it would have been obvious in view of Hoff et al to perform the destruction pulse or pulses at a time at 5 seconds after initial scanning is complete, see col. 5 lines 55 – 66, since one would not want any re-circulation effects prior to overall measurement completion. (Claim 1).

Hoff et al further teaches normalizing the Time Intensity Curve soas to set up for deriving mean transit time from the time-varying graph, see col. 2 lines 23 – 33, and it would have been obvious to incorporate same into Chandler et

al/Chandler since Hoff et al like the former is also an ECG-triggered blood perfusion/agent concentration measuring system, see col. 6 lines 1 – 6.

(Claim 2).

The lapses of time represented by the black dots in Chandler et al Figs. 2 – 5 represent return to full filling, as do the Fig. 2 dots in Hoff et al, and the latter performs standardization normalization during graph plotting. (Claim 3). .

Claims 4 – 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoff et al, further in view of Chandler.

Hoff et al teaches a scan sequence control in which scanning is performed at constant 5 second intervals after concentration agent injection and during wash-in replenishment (Fig. 2) and teaches producing plots thereof.

Hoff et al does not provide details of probe, generator or control unit nor is temporal averaging i.e. over a plurality of scans described. (averaging where practiced is effectively median spatial filtering of a five pixel block in col. 6 line 61.

However Chandler et al as read against claim 1 does teach the probe, driving signal generator and controller as the latter would have been modified by Hoff et al, and moreover teaches concentration value persistence or temporal averaging in a data averaging engine 192. (Claim 4).

Hoff et al as noted performs MTT calculations. (Claim 5).

The argument involving Chandler et al and Hoff et al against claim 3 with the reference sequence reversed yet carries forward against claim 6 which is identically worded thereto. (Claim 6).

Allowable Subject Matter

Claims 7 – 16 are allowed.

Any inquiry concerning this communication should be directed to Jaworski Francis J. at telephone number 703-308-3061.

FJJ:fjj

09172004

Francis J. Jaworski
Primary Examiner